

### **REMARKS**

Applicants have amended the claims to more particularly define the invention taking into consideration the outstanding Official Action. Applicants have amended claims 1, 3-4, 8-14 and 18 and have canceled claims 19-20 from the present application. Applicants have added new claims 44-46 (see PCT claims 21-23 as filed for support). Applicants submit that all of the claims now present in the application are fully supported by the specification as originally filed and no new matter is introduced.

The rejection of claim 4 under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention has been carefully considered but is most respectfully traversed in view of the amendments to the claim.

The nature of the suspended/supported fixed bed is explained in page 4, paragraph 3: "The nature of the reaction bed depends on the gas flow rate and on whether the gas flows through a barrier which is gas permeable but essentially impermeable to the particles. Where such as barrier is present, at sufficiently high gas flow rates a fixed reaction bed will be formed underneath the barrier". In other words, under sufficient force of gas flow, the suspended bed becomes sufficiently compressed as to stop being fluidised and to become essentially fixed. Accordingly, it is most respectfully requested that this rejection be withdrawn.

Applicants most respectfully submit that all of the claims now present in the application are in full compliance with 35 USC 112 and clearly patentable over the references of record.

The rejection of claims 1-20 under 35 USC 102(b) as being anticipated by Resasco et al. has been carefully considered but is most respectfully traversed in view of the amendments to the claims and the following comments.

Applicants wish to direct the Examiner's attention to MPEP § 2131 which states that to anticipate a claim, the reference must teach every element of the claim.

"A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2

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USPQ2d 1051, 1053 (Fed. Cir. 1987). "The identical invention must be shown in as complete detail as is contained in the ... claim." *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed Cir. 1989). The elements must be arranged as required by the claim, but this is not an *ipsissimis verbis* test, i.e., identity of terminology is not required. *In re Bond*, 910 F.2d 831, 15 USPQ2d 1566 (Fed.Cir. 1990).

In this regard, claim 1 has been amended to recite more clearly the steps by which the catalyst-containing reaction bed is supported within a reactor. Exemplary basis for the new wording can be found in page 5, paragraph 4 starting "The catalyst and particulate product are supported and suspended ..."; in page 18, paragraph 1 which says: "Preferably the middle section has a smaller cross-sectional area than the upper and lower section"; and in page 18, paragraph 3 starting "The use of gravity ...".

Applicants most respectfully submit that the Official Action does not appear to appreciate the nature of the present invention and the claimed subject matter. '847 teaches a conventional fluidised bed reactor; such reactors are well known and are discussed in the introduction to the present specification (page 3, lines 9-11). By contrast, the present invention provides a method and reactor in which, "unlike conventional fixed or fluidised bed reactors, the reaction bed or region is formed in the reactor vessel without a mechanical support so that the particulate product can be harvested once it falls from the reaction bed" (page 4, paragraph 2). As is recited in claims 1 and 44, the reaction bed is supported by the gas flow rather than by a mechanical support. This provides a significant advantage over the reactor of '847 in that "the flow rate of gas through the reactor can be used to regulate the weight of the particles being discharged from the reactor" (page 18, paragraph 2).

Claim 1 as amended clearly recites that a gas flow is used to support a reaction bed of catalyst-containing particulate material in an upper section of the reactor, with a carbon product being harvested by allowing it to fall from the upper section into a lower section, the upper and lower sections being separated by a middle section of smaller cross-section. No such arrangement is taught or suggested in '847.


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The Official Action confusion appears to stem, at least in part, from equating the term "suspended" with the term "fluidised". As has been explained above (and in the specification as filed), these two terms are not used synonymously in the present specification as would be appreciated by one of ordinary skill in the art. To avoid possible confusion, claim 1 has been amended to recite "support", rather than "suspension", of the reaction bed. Accordingly, it is most respectfully requested that this rejection be withdrawn.

The rejection of claims 1-20 under 35 USC 103(a) as being unpatentable over Resasco et al. has been carefully considered but is most respectfully traversed in view of the amendments to the claims and the above comments with respect to the relevancy of this reference. The only reason in support of the rejection is that any difference is said to be the result of optimization of variables. However, the differences with respect to the prior art and the presently claimed invention, as discussed above, is clearly not a matter of optimization and if this rejection is maintained, clarification of the reasons and variables which are considered to be obvious needs clarification. Without reasons in support of the rejection, the rejection should be withdrawn. Accordingly, it is most respectfully requested that this rejection be withdrawn.

In view of the above comments and further amendments to the claims, favorable reconsideration and allowance of all the claims now present in the application are most respectfully requested.

Respectfully submitted,  
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